

THE GROOMING BEHAVIOR¹

OF THE CHIMPANZEE AS A REINFORCER

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The grooming behavior of the chimpanzee predominantly consists in close visual examination with manipulation of the hair and skin with fingers and extended lips. Bits of dirt, skin, and imbedded objects are worked free and conveyed to the mouth of the groomer. Characteristic lip sounds and movements occur. It has been observed that both self-grooming and mutual grooming are common, "and either the groomer or the groomed individual may solicit or seek to initiate the activity" (5, pp. 50-51).

In the course of an experiment with a young chimpanzee, it was noticed that the animal attempted to groom E's arm or face whenever E approached the living cage. The experiment used an automatic nonspatial delayed-response apparatus and was run in a separate cubicle, E not being present. Following the daily experimental session the animal was returned to the living cage; and if E did not permit at least a few minutes of grooming to occur, a tantrum (1) inevitably resulted when E walked away from the cage. In order to determine whether grooming behavior could function as a reinforcer, it was decided to attempt the formation of a visual discrimination by using the opportunity to groom.

SUBJECT

The male chimpanzee referred to above and designated No. 141 (called Malcolm in other reports from this laboratory), 3 years, 10 months old, was used.

APPARATUS

A plexiglas handle 6 1/2 inches long and 1 inch high was glued to the center of a 10- by 10-inch square of clear plexiglas. Both pieces were cut from 1/8-inch stock. On the back of the plexiglas square, i. e., on the side to which the handle was attached, two 3- by 3-inch patterns were made out of 3/4-inch black plastic tape, an outline square and a cross. The patterns were positioned on either side of the handle, 3 1/2 inches from the top and bottom of the plexiglas square and 3/4 inch from either side. Since both figures were symmetrical along both their

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axes, the left-right positions of the figures could be changed by simply rotating the plexiglas square 180 degrees. To both sides of the handle a "cricket clicker" was attached.

PROCEDURE

The Reinforcer

The animal readily groomed E's right arm whenever it was moved up to the cage. It was found that 30-second periods of grooming with 5- to 10-second intervals between groomings were sufficient to sustain grooming behavior. The delivery of E's arm up to the cage wire was signalled by a clicker.

Discrimination Training

The discrimination apparatus was held in the left hand and about 6 inches from the cage wire, through which the animal could reach. S was required to touch the front of the plexiglas where the square appeared. When this occurred, E squeezed a clicker, lowered the apparatus, and moved his right arm up to the cage wire for 30 seconds of grooming. The position of the positive pattern was varied randomly. If the cross was touched, the apparatus was lowered for 5 seconds and then re-presented in the same position. Daily sessions were run immediately following the return of S to his living cage after the delayed-response session. Trials were continued each session until 10 reinforcements had been received.

Following acquisition, the discrimination was reversed.

RESULTS

The results of the initial discrimination (square positive) and the reversal (cross positive) are shown in Fig. 1. Discrimination criterion was set at the 0.01 level, using Grant's (2) table of runs. Both discriminations reached criterion.

DISCUSSION

Yerkes (4) has observed that from birth to 3 years of age grooming ordinarily does not appear, and is not evoked reliably until adolescence or maturity. It is interesting that grooming was an effective reinforcing agent in our rather immature

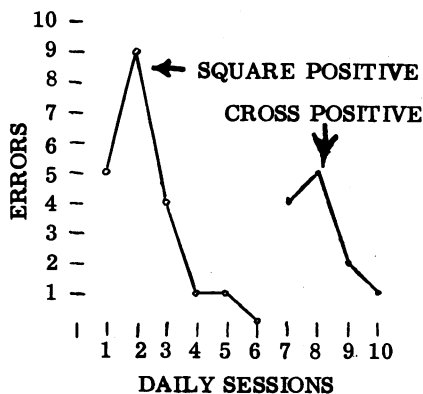


Fig. 1. Initial visual discrimination and reversal with 30-second grooming periods as reinforcements.

S. The age factor may have been offset by the factor of deprivation. S had been caged separately for 7 months, and the 1/4-inch hardware cloth lining the sides adjacent to other cages prevented mutual grooming responses.

S had never been observed to self-groom. However, although no intertrial interval was imposed, S often initiated vigorous self-grooming of the fingers following reinforcements. This was not the violent scratching of head and abdomen, as described by Finch (1), which is a common frustration response of many of the animals, including this one, following errors; but a specific picking and biting off of the skin on the balls of the fingers. This behavior was never observed to occur spontaneously at other times.

While E's arm was sometimes loosely held and rotated by S to facilitate grooming, the behavior manifestly differed from the clasping activity which McCulloch (3) found to be a reinforcer.

The stimulus components of E's arm to which S responded predominantly were abrasions or any unevenness of texture, especially a small, slightly raised mole on the dorsal forearm. A "band-aid" placed over this area and bits of plastic tape received little attention, but other animals have been observed to "groom" watches, cuff-links, and buttons rather intensely.

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